

AGENDA
CALIFORNIA TRAFFIC CONTROL DEVICES COMMITTEE (CTCDC)
February 23 2006 Meeting
860 Stillwater Road, West Sacramento, CA 95605
TIME 9:00 AM

Organization Items

- 1. Introduction**
- 2. Approval of Minutes (November 17, 2005 Meeting)**
- 3. Membership**
- 4. Public Comments**

At this time, members of the public may comment on any item not appearing on the agenda. Matters presented under this item cannot be discussed or acted upon by the Committee at this time. For items appearing on the agenda, the public is invited to make comments at the time the item is considered by the Committee. Any person addressing the Committee will be limited to a maximum of five (5) minutes so that all interested parties have an opportunity to speak. When addressing Committee, please state your name, address, and business or organization you are representing for the record.

Agenda Items

5. Public Hearing

Prior to adopting rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to Section 21400 of the California Vehicle Code (CVC), the Department of Transportation is required to consult with local agencies and hold public hearings.

06-1	Proposal to Amend MUTCD Section 4E.09 Accessible Pedestrian Signal Detectors	(Introduction) (Meis)
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05-7	Automated Flagger Assistance Devices (AFAD's) (Experiment Agency - Placer County)	(Continued) (Mansourian)
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6. Request for Experimentation

05-1	Experiment with a Pedestrian Enhanced Delineation System (By using in-roadway warning lights) for Crosswalks at the Signalized Intersection (Experiment Request by the City of Pasadena)	(Continued) (Bahadori)
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05-10	Proposal for the Watershed Boundary Signs (City of San Diego)	(Continued) (Meis)
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06-2	Request to Experiment with Colored Bike Lanes (City and County of San Francisco)	(Introduction) (Borstel)
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7. Discussion Items

04-7	Re-Evaluation of the Yellow timing for the Signalized Intersections.	(Continued) (Meis)
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- 06-3 Conflict between California Vehicle Code Section 275 and Federal American With Disabilities Act (ADA) (Introduction)
(Bahadori)
- 8. Information Items**
- 06-4 Calm the Safety Zone (City of San Francisco) (Introduction)
(Mansourian)
- 9. Tabled Items**
- 05-4 Older California Traffic Safety Task Force Proposal to Amend MUTCD Sections 3D.03, 6F.58 thru 6F.61, 6F.63, 6F.65, 6F.81 6F.85, 6G.15 and 6G.16 and Notes to TA's 39, 40, 41 and 45. (Continued)
(Meis)
- 05-9 Older California Traffic Safety Task Force proposed to amend MUTCD Sections 2D.38 (Street Name Sign, D3-1), 2B.34 (Do Not Enter Sign R5-1), 2B.35 (Wrong Way Sign R5-1a) and 3B.01 (Yellow Centerline Pavement Markings and Warrants) (Continued)
(Meis)
- 04-E California MUTCD Adoption (FHWA's MUTCD 2003 Revision 1, as amended for use in California) formerly known as "Combining of the MUTCD 2003 & CA Supplement to a single document" (Continued)
(Fisher)
- 10. Next Meeting**
- 11. Adjourn**

ITEM UNDER EXPERIMENTATION

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|-------|--|------------|
| 99-12 | Speed Striping For Smart Crosswalks
(Experiment Agency-Caltrans D7) | (Meis) |
| 99-13 | Illuminated Pavement Markers On Median Barriers
(Experiment Agency-Caltrans D7)
Status: The project has not been funded yet. | (Meis) |
| 01-4 | Tactile Pedestrian Indicator With Audible Information
(Experiment request by the City of Santa Cruz) | (Tanda) |
| 01-9 | IN-ROADWAY WARNING LIGHTS AT R/R CROSSINGS
(Experiment requests by CPUC in cooperation Kern Co. & City of Fresno) | (Meis) |
| 02-15 | Radar Guided Dynamic Curve Warning System
(Experimentation Agency – Caltrans D5) | (Meis) |
| 03-1 | Speed Feedback (Radar Speed) Sign
(Experimentation Agency – City of Whittier) | (Fisher) |
| 03-4 | Radar Speed Sign
(Experiment Agency – City of Vacaville) | (Borstel) |
| 03-5 | Radar Speed Sign
(Experiment Agency – City of San Mateo) | (Borstel) |
| 03-6 | Radar Speed Sign
(Experiment Agency – City of San Jose) | (Borstel) |
| 03-13 | Variable Speed Limit Sign
(Experiment Request by the City of Campbell) | (Borstel) |
| 03-14 | Numbering of Signalized Intersections
(Experiment Request by the CVAG) | (Babico) |
| 03-15 | Radar Speed Sign
(Experiment Request by the City of Fremont) | (Borstel) |
| 04-9 | Request to Experiment with “Watch The Road” Sign
(Experiment Agency – Los Angeles DOT) | (Bahadori) |
| 04-10 | Slow for the Cone Zone Sign
(Experiment Agency – Caltrans) | (Meis) |
| 04-12 | Requests for experimentation with "Flashing Yellow Arrows"
(Experiment Agency – City of Fullerton and Pasadena) | (Bahadori) |

STATUS OF CALTRANS ACTION ON PAST ITEMS

- Item 01-1 U-TURN SIGNAL HEADS INDICATOR
Caltrans will develop appropriate standards to ensure visibility and make the U-turn signal head indicator an official traffic control device by inclusion in the Caltrans Supplement.
- Item 00-4 USE OF RAISED PAVEMENT MARKERS IN TRANSVERSE PATTERN
Caltrans will take appropriate action on the recommendation made by the Committee.
- Item 02-3 RIGHT EDGELINE
Caltrans will take appropriate action on the recommendation made by the Committee.
- Item 04-8 Railroad Preemption Signals
Adopt revised Sections 8B.06, 10C.09 and Figures 8B-3, 10C-2 of the MUTCD 2003 and to include in the California Supplement as amended and to ask Caltrans to develop policies and specifications for blank-out signs.
- Item 02-16 Signal Warrant I & II
Adopt the revised Section 4C.01 of MUTCD 2003 and include in California Supplement.
- Item 04-13 Proposal to Amend MUTCD 2003 Section 4E.10
Option:
Where older or disabled pedestrians routinely use the crosswalk, a walking speed of 0.85-m (2.8 ft) per second may be used in determining the pedestrian clearance time.

06-1 Proposal to Amend MUTCD Section 4E.09, Accessible Pedestrian Signal Detectors

The MUTCD includes the following:

Section 4E.09 Accessible Pedestrian Signal Detectors

Guidance:

Push-buttons for accessible pedestrian signals should be located (see Figure 4E-2) as follows:

- A. Adjacent to a level all-weather surface to provide access from a wheelchair, and where there is an all-weather surface, wheelchair accessible route to the ramp;
- B. Within 1.5 m (5 ft) of the crosswalk extended;
- C. Within 3 m (10 ft) of the edge of the curb, shoulder, or pavement; and
- D. Parallel to the crosswalk to be used.

If the pedestrian clearance time is sufficient only to cross from the curb or shoulder to a median of sufficient width for pedestrians to wait and accessible pedestrian detectors are used, an additional accessible pedestrian detector should be provided in the median.

The recommended changes are in blue as follows:

- A. Adjacent to a level all-weather surface to provide access from a wheelchair, and where there is an all-weather surface, wheelchair accessible route to the ramp;
- B. Within 1.5 m (5 ft) of the crosswalk extended boundaries
- C. Within 3 m (10 ft) of the edge of the curb, shoulder, or pavement; and
- D. Parallel to the crosswalk to be used.

If the pedestrian clearance time is sufficient only to cross from the curb or shoulder to a median of sufficient width for pedestrians to wait and accessible pedestrian detectors are used, an additional accessible pedestrian detector should be provided in the median.

Also change the Vertical distance in figure 4E-2, from "3m (10') " to "1.5 m (5')"

The goal of the changes are to provide a general requirement for crosswalks to have a pedestrian push buttons within 5' of their boundaries of the or their extension.

Reasons for the changes are as follows:

It has been a Caltrans policy to limit the distance between the pedestrian push button and the crosswalk to 5' not 10'. A pedestrian using the signalized intersection, tends to disregard and ignore the push buttons when they are located more than 5' away from the crosswalk. If the pedestrian push button is not pressed/activated the traffic signal controller will not initiate the pedestrian phasing (walk / do not walk). The pedestrian will tend to cross the street without having adequate time to clear the intersection, thus increasing the opportunities of having a pedestrian present in the intersection while the conflicting vehicle movement is taking place.

In addition, installing a traffic control device at a location where it would not be used effectively is bad practice that may lead to pedestrian disregard to traffic signals and to pedestrian detectors in general.

05-7 Automated Flagger Assistance Devices (AFAD's)

P 1 of 1

The Placer County has completed the experiment with First Call Flagger (FCF), authorized by the Committee during the July 28, 2005 meeting. The County has requested to place this item under the action items and has promised to submit a detail study, recommendations and a draft language to be included into the California Supplement. **If the County fails to submit the information as promised, the item will be moved under the "Information Items".**

The following is a very brief information submitted by the County to share with the Committee members:

Kevin Taber, P.E.
Manager, Road Maintenance Division
Department of Public Works, County of Placer

Allow me to take this opportunity to correspond with you regarding our experimental use of the First Call Flagger (FCF). Unfortunately, I will not be able to attend Thursday's CTCDC meeting in Los Angeles, so I would like to forward some comments regarding this device, and our experience with this device.

I think the committee is more interested in the function of the machine versus the machine itself, but I would like to mention that the unit provided by First Call Flagging and Bret Goss was a well designed and well constructed machine. The welds on the unit were superb, and the electronics were simple, functional, and well laid out. The FCF is not something that Bret put together in his garage - it is a reliable and roadworthy piece of machinery. I feel it important to note this, because this initial impression of a high quality machine gave our operators the confidence that the machine would perform as advertised.

We did not have the lingering doubt that the machine may fail us.

We used the machine in a variety of situations. It replaced one flagman, which allowed us to have an extra person working on the crew instead of flagging. Because the warning/signal lights are highly visible, our operators felt that traffic 'respected' the device more so than they would a human. I think the motoring public tends to honor a traffic signal more than they do a flagman with a vest. One passing motorist did make a comment something to the effect that they were glad to see us using a machine instead of 'wasting his tax dollars on a \$15/hour flagger'.

I am not completely familiar with the approval process regarding non-standard traffic control devices, but I would strongly recommend that the Committee consider the FCF for interim and/or final approval As a standard traffic control device in California. It met, and exceeded, our expectations.

If you have any questions, feel free to call or e-mail me at your convenience.

Sincerely,

Kevin Taber, P.E.
Manager
Road Maintenance Division
Department of Public Works
County of Placer
(530) 889-7565

05-1 Experiment with a Pedestrian Enhanced Delineation System (by using in-roadway warning lights) for Crosswalks at the Signalized Intersection



DEPARTMENT OF TRANSPORTATION

January 13, 2006

Hamid Bahadori, P. E., T. E.
Principal Transportation Engineer
Automobile Club of Southern California
333 Fairview Road, Suite A131
Costa Mesa, California 92626

RE: Pedestrian Enhanced Delineation System (PEDS) – Request for Experimentation

Dear Mr. Bahadori:

The City of Pasadena is requesting the California Traffic Control Devices Committee (CTCDC) to concur with the Federal Highway Administration's (FHWA) approval to experiment with a **Pedestrian Enhanced Delineation System (PEDS)** for crosswalks at the signalized intersection of Arroyo Parkway and Fillmore Street.

Background

On March 25, 2005, the City of Pasadena presented the above request to CTCDC. After presentation and discussion of this proposal, CTCDC chose not to take a specific action on this proposal. The Committee felt that since the application of "In Roadway Warning Lights (IRWL)" for pedestrians is not currently addressed in the Manual on Uniform Traffic Control Devices (MUTCD), that this issue should first be referred to the FHWA for approval. The pertinent parts of the CTCDC meeting minutes and the official action of the Committee on this topic are shown below in *"italics"* for easy reference:

Chairman Fisher stated that since the MUTCD says, "IRWLs shall not be used at signalized intersections," in his opinion federal approval is required.

Chairman Fisher and other Committee members agreed for the City to approach the FHWA for approval.

Action: The Committee took no action on the item; however, it

Mr. Hamid Bahadori

P 2 of 9

Pedestrian Enhanced Delineation System (PEDS) – Request for Experimentation
January 13, 2006, Page 2

suggested that the City of Pasadena approach FHWA for approval on experimenting with in-roadway LED pedestrian delineators.”

FHWA Approval

As suggested by the CTCDC, on November 29, 2005, the City submitted a request to FHWA for approval of this experiment. On December 20, 2005, FHWA approved the City's request for this experimentation. A copy of FHWA's approval is attached as **EXHIBIT 1**. Comments referenced as part of the FHWA approval will be incorporated and addressed as part of this experiment.

A copy of the City's request to FHWA is attached as **EXHIBIT 2**.

Duration of Experiment

The City of Pasadena requests a three-year demonstration for this experiment. The project may be terminated according to CTCDC's "Guidelines for Experimentation with Traffic Control Devices."

Reporting

The City of Pasadena will provide CTCDC with periodic status reports on the experimentation in accordance with the Committee's "Guidelines for Experimentation with Traffic Control Devices."

Administration

The City of Pasadena will be responsible for administering this experiment under the direction of Bahman Janka, Transportation Administrator.

We appreciate CTCDC's consideration of our request and look forward to receiving the committee's concurrence with FHWA's approval to experiment with this operation, thereby improving the visibility and effectiveness of the painted crosswalks at this important link to the City's Gold Line Light Rail station.

Please feel free to call me if you have any questions regarding our request.

Respectfully,



Bahman Janka, P.E.

Transportation Administrator, City of Pasadena, Department of Transportation 221 East Walnut Street, #210 Pasadena, CA 91101 (626) 744-4610 - bjanka@ci.pasadena.ca.us



U.S. Department
of Transportation
**Federal Highway
Administration**

December 20, 2005

400 Seventh St., S.W.
Washington, D.C. 20590

Refer to: HOTO-1

Mr. Bahman Janka
Transportation Administrator
City of Pasadena
Department of Transportation
221 East Walnut Street, #210
Pasadena, CA 91101

RECEIVED

of
JAN 04, 2006

CITY OF PASADENA
Transportation

Dear Mr. Janka:

Thank you for your November 29 letter requesting permission to experiment with steady and flashing in-roadway lights for the purpose of enhancing the delineation of crosswalk lines for pedestrians.

Chapter 4L of the Manual on Uniform Traffic Control Devices (MUTCD) provides for the use of in-roadway lights to warn drivers of the presence of an uncontrolled crosswalk. However, your experimentation is aimed at enhancing the conspicuity of the proper crossing paths for pedestrians and complementing the simultaneously operated pedestrian signal indications at a signalized intersection. You intend to evaluate the effects on both pedestrian compliance and motorist behavior in yielding to pedestrians when turning at the experiment location and at a control site.

We have reviewed your proposal for experimentation and have found it to be satisfactory, subject to the following comments:

- Orange, rather than yellow, should be the color of the in-roadway lights during the flashing or steady don't walk intervals if lights in that color are commercially available. If orange is not readily available from manufacturers, yellow will be acceptable for this experiment.
- We have a concern that the display of steadily illuminated orange or yellow in-roadway lights along the crosswalk lines during the steady don't walk interval may unduly encourage pedestrians to begin crossing. We approve of your plan to evaluate both options for in-roadway display (steady orange or yellow, or dark) during the steady don't walk. However, we urge that you monitor pedestrian behavior very closely during the steady don't walk interval immediately following implementation. The illuminated in-roadway display during the steady don't walk interval must be eliminated promptly if there is any indication that it is encouraging unsafe pedestrian movements.

EXHIBIT 1



Your request for experimentation is approved for a period of 3 years following the installation of the experimental in-roadway lights. For reference purposes, we have assigned your request the following official experimentation number and title: "4-301(E) – In-Roadway Lights for Pedestrian Delineation – Pasadena, CA." Please refer to this number in future correspondence.

We appreciate your interest and effort in improving traffic and pedestrian safety and operations, and we look forward to receiving your reports and evaluation results from the experimentation. If we can be of further assistance in this project, please contact Mr. Scott Wainwright by email at scott.wainwright@fhwa.dot.gov or by telephone at 202-366-0857.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'R. McElroy', with a stylized flourish at the end.

Regina S. McElroy
Director, Office of Transportation
Operations



DEPARTMENT OF TRANSPORTATION

November 29, 2005

Ms. Regina S. McElroy, Director
Office of Transportation Operations (HOTO)
Federal Highway Administration
400 Seventh Street SW
Room 3408
Washington, DC 20590

RE: Pedestrian Enhanced Delineation System (PEDS) – Request for Experimentation

Dear Ms. McElroy:

The City of Pasadena is requesting the Federal Highway Administration approval to implement an experiment with a **Pedestrian Enhanced Delineation System (PEDS)** for crosswalks at the signalized intersection of Arroyo Parkway and Fillmore Street.

Background

The City of Pasadena is currently involved in the design development of the City's Arroyo Parkway Streetscape Enhancement Project. The goal of the project is to improve mobility, enhance the streetscape of Arroyo Parkway, and enhance the delineation of the pedestrian crosswalk lines through the application of technology to increase pedestrian compliance and increase the visibility of the crosswalks to pedestrians.

The intersection of Arroyo Parkway and Fillmore Street is located midway along the City's project and is controlled with a traffic signal and pedestrian crosswalks. The Gold Line Light Rail Transit (LRT) Fillmore Station is located on the west side of the street and the crosswalks are used by pedestrians from the area's residential land uses on the east side of the street to access the light rail station for trips to Los Angeles or other areas.

*221 East Walnut Street ♦ Suite 210 ♦ Pasadena, CA 91101
www.cityofpasadena.net/trans*

EXHIBIT 2

Ms. Regina S. McElroy, Director
Pedestrian Enhanced Delineation System (PEDS) – Request for Experimentation
November 29, 2005, Page 2

Need for Crosswalk Enhancement

The Gold Line LRT started operation in Pasadena in July 2003. The intersection of Arroyo Parkway and Fillmore Street was signalized in advance of the Gold Line opening to provide a safe crossing for pedestrians using the intersection to access the Gold Line LRT station. While the traffic signal provides standard safety features for pedestrians, the City's goal is to provide additional enhancements to the crosswalks to promote the use of the crosswalks, increase the visibility of the crosswalk lines to pedestrians especially during night time hours, and increase the pedestrians' compliance with the pedestrian signal indications.

Relation to MUTCD

The 2003 Manual on Uniform Traffic Control Devices (MUTCD) Chapter 4L provides Support, Standard and Guidance for application of "In-Roadway Lights." While this chapter references the applicability of these devices to warn "road users", the intent of the chapter appears to focus on warning "motorists" using the roadway. This chapter does not specifically address how and if the "In-Roadway Lights" may be used to warn "pedestrians" of specific conditions.

Scope of the Experimentation

This experiment will install in-pavement lights outside the borders of crosswalk lines at the signalized intersection of Arroyo Parkway and Fillmore Street leading to one of the City's Gold Line LRT stations. Attachments 1 and 2 illustrate the location and concept for the in pavement lights at the subject intersection. This experiment is focused only on "enhancing pedestrian markings" and as such, the in-pavement lights will be installed in such a way to only be directed along the crosswalk lines towards pedestrians, not towards the approaching traffic. The in-pavement lights will be connected to and synchronized with the pedestrian signal indications at the intersection, and will be operated in the following fashion:

- During the pedestrian **WALK** interval, the in pavement lights will be turned on to **SOLID WHITE**
- During the pedestrian **FLASHING DON'T WALK** interval, the in-pavement lights will be turned on to **FLASHING YELLOW**
- During the pedestrian **DON'T WALK** interval, two options may be available:
 - b) The in pavement lights will be turned **OFF** or remain **DARK**, until the next possible pedestrian actuation

The City of Pasadena proposes to experiment with both options, and include an evaluation of the relative effectiveness of the two displays as part of the Evaluation Procedure described below.

Duration of Experiment

The City of Pasadena requests a 3-year demonstration for this experiment. The project may be terminated according to the FHWA's Guidelines for Experimentation with Traffic Control Devices.

Evaluation Procedure

The City of Pasadena will conduct BEFORE and AFTER studies to measure the effectiveness of the proposed experiment. The studies will include pedestrian counts, pedestrian compliance during the WALK and FLASHING DON'T WALK intervals, pedestrian violations during the DON'T WALK interval, as well as the motorists' compliance or violation of pedestrians' right of way during the WALK and FLASHING DON'T WALK intervals. The studies will also include an overall qualitative statement about the effectiveness of the proposed Pedestrian Enhanced Delineation System.

Ms. Regina S. McElroy, Director
Pedestrian Enhanced Delineation System (PEDS) – Request for Experimentation
November 29, 2005, Page 3

Both options regarding the use of SOLID YELLOW and DARK display as described above, will be included as part of the experimentation. In addition, similar field data will be collected at one additional “control” site having similar characteristics where no in-pavement lights are installed and the results will be compared with data obtained at the test location.

Site Restoration

The City of Pasadena agrees to restore the experiment site to a state complying with the provisions of the MUTCD:

- within three months following the end of the time period of the experiment, or
- at any time that the participating agency determines that significant safety concerns are directly or indirectly attributable to the experimentation, or
- if requested to do so by the Office of Traffic Operations.

If, as a result of experimentation, a request is made that the Manual be changed to include “In-pavement Roadway Lights” to be used to warn pedestrians of specific conditions, then the experimental device may remain in place until an official rulemaking action has occurred.

Reporting

City of Pasadena will provide semi-annual progress reports until the experiment is completed. A copy of the final results will be sent to FHWA, HHS-10, within three months following completion of experimentation. All reports will be submitted to:

Ms. Regina S. McElroy, Director
Office of Transportation Operations
HOTO Room 3401
400 7th Street, S.W.
Washington, D.C. 20590

Project Administration

City of Pasadena will be responsible for administering this experiment under the direction of Bahman Janka, Transportation Administrator. We appreciate your consideration of our request and look forward to receiving the FHWA’s permission to experiment with this operation, thereby improving the visibility and effectiveness of the painted crosswalks at this important link to the City’s Gold Line Light Rail station. Please feel free to contact me if you have any questions regarding our request.

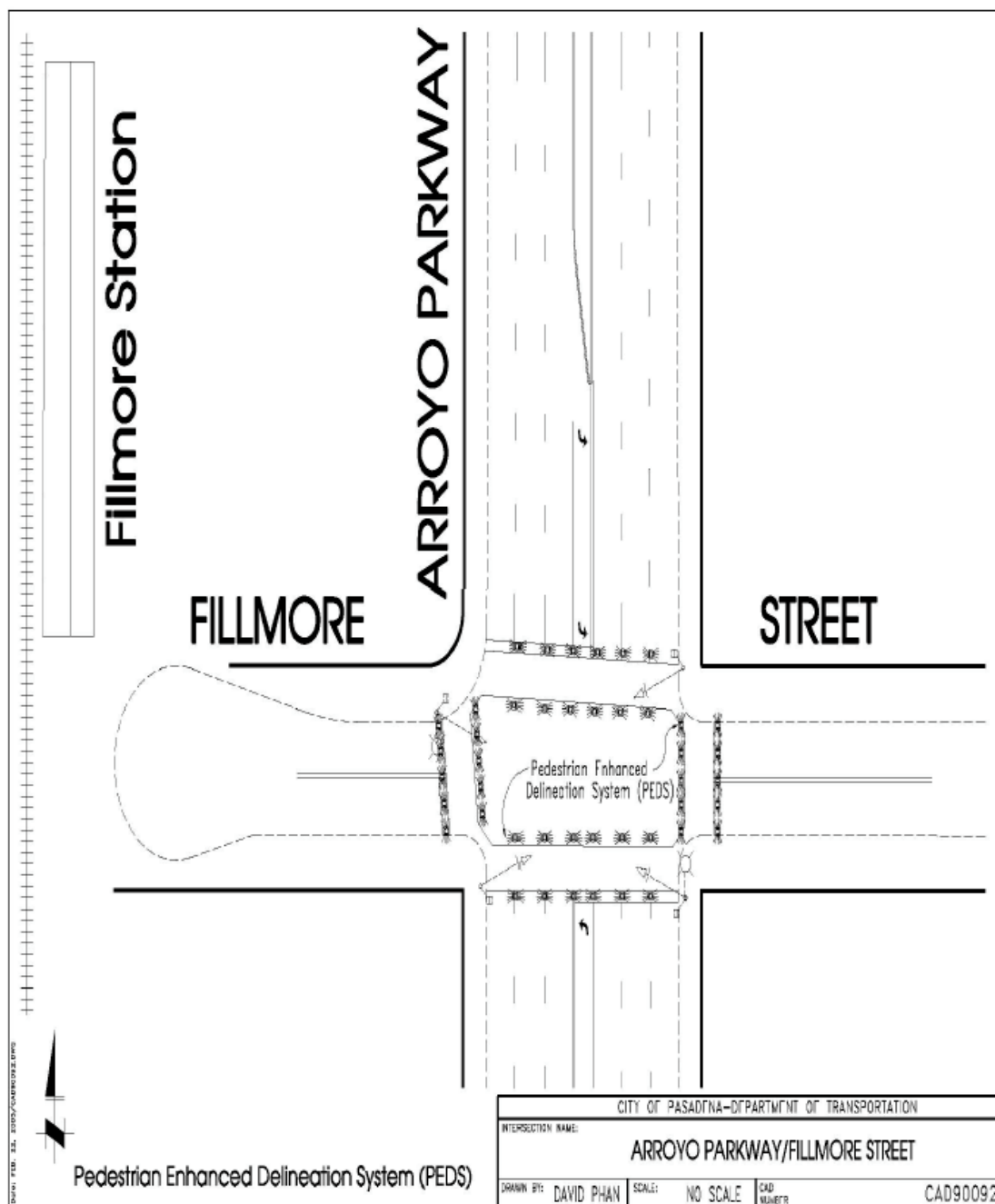
Respectfully,

Bahman Janka, P.E.
Transportation Administrator
City of Pasadena
Department of Transportation
221 East Walnut Street, #210
Pasadena, CA 91101
(626) 744-4610
bjanka@ci.pasadena.ca.us

Ms. Regina S. McElroy, Director

Pedestrian Enhanced Delineation System (PEDS) – Request for Experimentation

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ATTACHMENT 1

Ms. Regina S. McElroy, Director
Pedestrian Enhanced Delineation System (PEDS) – Request for Experimentation
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ATTACHMENT 2

05-9 Proposal for the Watershed Boundary Signs

P 1 of 4

Background:

During the November 2005 meeting six out of seven Committee members agreed to place “watershed boundary sign” on the CTCDC agenda under experimentation requests. The Committee also asked the San Diego Water District to seek a support from the State Water Board. In addition to that, the State Water District Board should encourage other water agencies to use the same sign in case they would like to implement the same program.

Gerry Meis stated that he believes that this is not a traffic control device and therefore it does not fall under the purview of the Committee. Gerry Meis commented that the adopt-a-highway sign was created through legislation. Should the San Diego Water District seek legislation for the watershed boundary sign?

Hamid Bahadori suggested keeping watershed sign as a stand alone sign.

Merry Banks commented that she likes the program and would like to see the Committee take leadership and approve the pilot program.

Farhad Mansourian stated that he supports the program and would support legislation for the adoption of the program.

Hamid Bahadori stated that the program is very good idea. He personally believes that the Committee should not leave it up to another agency to develop sign specs that will be used at the State level. Even the Committee has to stretch their limits to come up with a standard sign that will be good for the long run. Hamid added that he would not support to allow other agencies to develop signs that will be used on freeways and other public roadways.

Chairman Fisher stated that he does not have any conceptual problems with the scheme. We have signs which identify rivers and streams. He does not have any problem to stretch the use of that sign for watershed areas. The only question he has is if the Committee adopts this statewide, will other water agencies use the same signage if they choose to follow the program. If you can get support from other agencies indicating that they will use the same sign, then he will support the pilot program.

Farhad Mansourian asked to bring support from other agencies indicating that they would use the same sign. He further asked to develop a draft policy where to use these signs.

**City of San Diego, Water Department
Watershed Boundary Sign Proposal**

Request

The City of San Diego Water Department is requesting approval of a new advisory sign that will inform motorists that they are traveling in a watershed of critical importance. The initial request is for a pilot program that will place six signs along state highways where they cross into the watersheds of the San Diego River or the San Dieguito River, both in the metropolitan San Diego area. Ultimately, the use of the standard watershed boundary sign may be expanded throughout Southern California or throughout the state.

Description of Sign

Examples of the proposed watershed boundary signs are attached. The key features of the sign are a simple, yet compelling graphical layout with the name of the critical watershed prominently featured. An auxiliary sign would name the proximate water resource feature; for example, a drinking water reservoir, a coastal lagoon, or a groundwater basin. The signs would be placed near the topographic boundary where the roadway enters or leaves the watershed.

Purpose and Goal

The purpose of the watershed boundary signs is to make the motoring public aware that they are entering or leaving a critical watershed area. Our short-term goal is to design, produce, and install six watershed boundary signs along a highway or interstate in the San Diego area. Our long-term goal is to establish a statewide watershed boundary sign program with a universal sign design that could serve as a watershed icon that could be implemented by other California communities.

Background

In August 2004, the San Diego Water Department received a \$2,500 grant from the Metropolitan Water District of Southern California (MWD) through the auspices of the San Diego County Water Authority (SDCWA) to create and implement a Watershed Boundary Sign Program. The signs would provide opportunities for the public to increase their awareness about the importance of San Diego's watersheds and encourage community stewardship of watershed resources. In partnership with California State Department of Transportation (Caltrans), these signs would be placed at strategic locations along the boundary of a watershed to make the motoring public aware that they are entering or leaving a critical watershed area; and would serve as reminders to not throw trash or other pollutants onto the roadway. The benefits of this program include helping us to meet our storm water pollution prevention goals, and supplementing the United States Environmental Protection Agency's efforts to increase awareness and education of the importance of preserving our natural resources.

The watershed boundary sign project has garnered considerable support from other water agencies in Southern California, as well as from numerous community groups. Letters of support received to date are included for review. Of special note is a letter of support from the MWD suggesting that the watershed boundary signs be used throughout its six county service areas.

We are currently researching and obtaining information regarding the process to create design standards for this type of signage, and how to install them at the envisioned locations of the watershed boundaries.

Local Caltrans Office Coordination: We have contacted the Local Caltrans office to determine how to progress with our efforts. With no current design standards in place for this type of sign, they have informed us that they would not be able to create a sign and suggested we contact the State Caltrans office for information on developing sign design templates and specifications.

P 3 of 4

State Caltrans Office Coordination: We have contacted the Signs and Work Zone branch of the State office, and they have informed us that they are experimenting with a sign on State Highways in the Northwest region, under a program sponsored by the California Department of Forestry (CDF). However, we feel that the design of this sign, which incorporates an image of a fish, does not clearly express our message of watershed awareness; and instead represents watershed recreation activities like fishing. Our goal is to create a standardized sign design that incorporates an image of a body of water, such as a stream or reservoir, in order to graphically represent to the public that they are within a watershed. We are working with the State office to determine the possibility of integrating our project with the CDF sign project.

Next Steps

Currently, we are working on presenting our program proposal to Caltrans and their Traffic Control Device Committee for review and consideration to develop a sign template and pilot program. Our next steps would include: continue the work being coordinated with state officials such as the Water Resources Department and the Regional Water Quality Control Board, coordination with the California Watershed Network for design support, continue seeking additional grant funding for the implementation phase, and conduct more local community outreach efforts. We've created a sign to use as visuals in future presentations. A supplemental public service campaign and community outreach plan would be needed to accompany the roll-out of these signs as a way to generate public awareness and connect the signs with the message that everyone has a responsibility in protecting our drinking water supply reservoirs and watersheds. Our ultimate goal is to create opportunities for the public to learn about the importance of watersheds and encourage community stewardship of watersheds.



EVALUATION OF SOLID AND DASHED GREEN BICYCLE LANES REQUEST TO EXPERIMENT

Submitted to:

California Traffic Control Device Committee
and

To be Submitted to:

*(Federal Highway Administration
Office of Traffic Operations)*

Submitted by:

City and County of San Francisco
Municipal Transportation Agency
January 12, 2005

BACKGROUND

The City of San Francisco has been working for the past decade to implement on-street bikeway projects in order to encourage cycling, improve safety, and improve the quality of bicycling so that it becomes an integral part of daily life. Because San Francisco is a completely built-out urban environment, almost all projects involve retrofitting existing streets and intersections. San Francisco has challenging topography, a high demand for on-street parking, and high volumes of transit and motor vehicle traffic. To address the various conditions along San Francisco's streets, a series of Supplemental Design Guidelines were developed as part of 2005 San Francisco Bicycle Plan update. These design concepts are intended to further clarify unique facility situations within San Francisco and propose additional, experimental facilities like colored bike lanes. This formal request for experimentation is for green colored bike lanes, a device proposed within San Francisco's Supplemental Design Guidelines.

1. NATURE OF THE PROBLEM

Some of San Francisco's bike lanes, while compliant to existing design standards, are in situations that are more unique than the 'typical' bike lanes that are installed on the right-hand side of the road adjacent to a curb or parked cars. Some examples of these 'unique situations' include: bike lanes adjacent to narrow turning lanes and travel lanes; left turn-lane bike lanes; advance stop bar "bike boxes"; and, left side bike lanes. In these types of installations, additional attention by the bicyclists and motorists is required to re-emphasize proper lane placement and to attempt discouraging the encroachment of the bicycle lane by motor vehicles. A colored treatment could bring more awareness and compliance to these types of bicycle facilities. (Situation A)

Another situations that the City and County of San Francisco would like to address are areas where both the bicyclist and motorist are crossing paths to one another. A colored treatment would attempt to emphasize the space as an area of potential conflict, where either mode may cross the other's path of travel. This colored application would be distinct from the previously mentioned situation. (Situation B)

2. DESCRIPTION OF PROPOSED CHANGE

The City and County of San Francisco proposes to evaluate the existing conditions at various study locations. After a baseline condition is established, a green colored treatment will be applied as "fill" within the bicycle lane.

Situation A, would be demarcated with a solid colored (green) bike lane where the bike lane lane-markings are solid. No colored treatment will be applied where there is a dashing of the bike lane.

Situation B would be demarcated with a dashed colored (green) bike lane where the bike lane markings (if present) are dashed.

A. CHOICE OF COLOR

Recent federal studies by the City of Chicago, City of New York, and the State of Vermont have all been recommended to use the color green. The Bicycle Technical Committee (BTC) and the Pavement Markings Technical Committee (PMTTC) of the National Committee on Uniform Traffic Control Devices (NCUTCD) have repeatedly suggested the colors green or magenta.

The City of Chicago compiled a table that compares the different colors defined within the Manual of Uniform Traffic Control Devices (MUTCD). While there is an indication that the color blue might be more visible, it's association with reserved spaces for person with disabilities, dissuades its use. The City of Chicago's table is attached at the end of this document. Currently, the standard treatment for bike lanes is not to colorize them.

B. RELATED FHWA STUDIES

City of New York- Solid Green Bike Lanes within curbside bike lane (Ongoing)

City of Chicago- Solid Green Bike Lanes in the transition area of a bike lane (Ongoing)

State of Vermont, South Burlington- Solid Green Bike Lane in a potential conflict area (Ongoing)
Experiment No. IX-67(E)

City of Portland, Oregon- Solid Blue Bike Lane in transition area of a bike lane (Completed) *Report No. FHWA-RD-00-150, August 2000*

C. APPLICATION

The City of San Francisco proposes solid and dashed (broken) colored treatments. These treatments would denote different messages to the roadway users. Many of the U.S. studies have focused on a solid application of color treatment which primarily focused on the transition/conflict area; only the recent City of New York study will explore the use of color as it relates to the encroachment of a bike lane.

By applying colored treatments in transition/conflict areas and areas of encroachment at the same time, the City of San Francisco would like to study the effectiveness of the treatment in these two types of situations. By applying a dashed colored treatment in areas of transition/conflict, it would be consistent with the existing dashed (broken) striping of bike lanes in transitional areas.

D. MATERIAL

If resources allow, San Francisco will apply several different colored materials along a sample roadway to test the relative wearability, ease of application, maintenance and visibility of different applications. However, based upon initial review of available products, the preferred treatment would be a micro surface binder consisting of a colored synthetic bitumen emulsion. (Some typical trade names products include: Marco-Color, Macro-Grip, and TyreGrip)

Paint was not considered as a potential material due to its lack of wearability; other potential considerations are skid resistant thermoplastic, or methylmethacralite.

3. SUPPORTING DATA

A. SCOPE

The City and County of San Francisco proposes to evaluate the existing conditions at study locations. After a baseline condition is established, a green colored treatment will be applied as “fill” within the bicycle lane. The variable that will be studied in this proposed experiment is the addition of the green markings for two types of generalized situations

Situation A: Reducing Encroachment by Motorists Demarcation of a solid colored (green) bike lane in areas of potential motor vehicle encroachment.

Situation B: Highlighting Conflict/Weave Areas Demarcation of a dashed colored (green) bike lane in areas of transition (merging/weaving) or conflict.

Locations

The following is a list of anticipated locations, additional locations might be also included.

Situation A: Reducing Encroachment by Motorists

- A.1 Market Street at Freeway/Octavia Blvd. (No Right Turns are allowed across bike lane)
- A.2 Market Street at 10th Street (Through bike lane between narrow lanes)
- A.3 Howard Street at 11th Street (Left turn bike lane)
- A.4 14th Street at Folsom Street (Advanced stop line or “Bike Box”)
- A.5 Fell Street from Scott to Baker Streets (Left side bike lane between narrow travel lanes and parking lanes)

Situation B: Highlighting Conflict/Weave Areas

- B.1 Cesar Chavez at 101 entrance (Entrance to Bike Path)
- B.2 San Jose Avenue at Guerrero Street (Highlighting predominant through movement)

B. WORK PLAN

EXISTING DATA COLLECTION

Observations will be recorded by video with before and after data collected and tabulated. Each location will be observed multiple times, during the peak period (i.e., 7am-9am or 4pm-6pm). The following observations will be recorded:

- o Number of motor vehicles encroaching in the bicycle lane
- o Motorists distance of encroachment into bicycle lane
- o Number of conflicts* between bicyclists and motorists
- o Vehicle and Bicycle volumes
- o Bicyclist behavior (signaling, shoulder checks, etc.)

- o Driver behavior (signaling, correctly entering a bike lane when crossing it, frequency of aggressive behavior, etc.)
- o Durability of the colored bicycle lane treatment

*Conflicts will be defined by the researcher prior to the beginning of the study. Typical indications of a conflict are sudden braking, swerving, or acceleration. Variable interpretations of what constitutes a conflict will be minimized by having the same researcher viewing before and after data.

APPLICATION OF VARIABLE

Once existing conditions are documented, the colored treatment will be applied. Several weeks will be allowed before the collection of “after” data resumes.

AFTER DATA COLLECTION

The same observations that were collected during the existing data collection will be collected. In addition, user surveys (both of the motorists and bicyclists) will be utilized to collect information on user perception of the colored lane treatments.

C. TIME PERIOD

Timeline based on assumption that permission to experiment will be granted by the Summer of 2006 from the CTDCD and FHWA

- Spring/Summer of 2007 Secure Contracts to Install Colored Treatments and Relative Consultant Contracts
- Spring/Summer of 2007 Collection of Existing Data
- Summer of 2007 Application of Variable (Color Treatment)
- Summer/Fall of 2007- Collection of After Data
- Winter 2007- Compilation of Final Report
- Summer 2008- Submit final report to CTCDC and FHWA

D. EVALUATION PROCEDURES

If statistically significant improvements in behavior occur within the following criteria, colored bike lane treatment should be considered for standardization:

- o Reduction of motor vehicles encroachment in the bicycle lane
- o Reduction of motorists distance of encroachment into bicycle lane
- o Reduction of conflicts between bicyclists and motorists
- o Bicyclist behavior (signaling, shoulder checks, etc.)
- o Driver behavior (signaling, correctly entering a bike lane when crossing it, reduction of aggressive behavior, etc.)
- o Awareness of motorists that bicyclists are traveling along a bicycle route
- o Awareness of proper lane placement for bicyclists and motorists

E. REPORTING

Reporting will be submitted as specified by the Committee. The final report will be compiled for the CTCDC and the FHWA.

F. ADMINISTRATION

The San Francisco Municipal Transportation Agency will be the sponsoring agency. Consultant services will be utilized as needed.

G. REMOVAL OF EXPERIMENTATION INSTALLATIONS

The San Francisco Municipal Transportation Agency would remove experimentation installations upon completion of the experiment if the Committee reaches a decision that a change to the California Supplement of the MUTCD is not warranted, nor consistent with the MUTCD.

ATTACHMENT 1
City of Chicago's Table of Color Options

Attachment 2 - Color Options for Chicago Colored Bike Lanes
(Only Colors defined in the MUTCD are shown)

Colour	General Meaning	Current Marking Usage	Pros	Cons
Black	<ul style="list-style-type: none"> regulation 	<ul style="list-style-type: none"> may be used in combination with other colors where a light-colored pavement does not provide sufficient contrast with the markings 		<ul style="list-style-type: none"> may not provide sufficient contrast or visibility
Brown	<ul style="list-style-type: none"> recreational and cultural interest area guidance 			<ul style="list-style-type: none"> may not provide sufficient contrast or visibility
White	<ul style="list-style-type: none"> regulation 	<ul style="list-style-type: none"> separation of traffic flow in same direction delineate right edge of roadway 		<ul style="list-style-type: none"> currently widely used for roadway markings could be confused with normal markings (one big line)
Yellow	<ul style="list-style-type: none"> Warning 	<ul style="list-style-type: none"> separation of traffic traveling in opposite directions left edge of roadway of divided and one-way highways and ramps separation of two-way left turn lanes and reversible lanes from other lanes 		<ul style="list-style-type: none"> currently widely used for roadway markings could be confused with normal markings (separating opposing lanes)
Orange	<ul style="list-style-type: none"> temporary traffic control 			<ul style="list-style-type: none"> associated with construction
Fluorescent Pink	<ul style="list-style-type: none"> incident management 		<ul style="list-style-type: none"> may be highly visible 	<ul style="list-style-type: none"> used solely for incident management
Blue	<ul style="list-style-type: none"> road user services guidance tourist information evacuation route 	<ul style="list-style-type: none"> handicapped parking spaces locations of fire hydrants (raised markers) used for blue bike lanes in Portland (non FHWA approved) 	<ul style="list-style-type: none"> previous usage in US may provide good visibility 	<ul style="list-style-type: none"> may cause confusion with markings for handicapped Vermont requested this colour, but FHWA refused the request and said to use green FHWA is currently leaning towards only using yellow-green for school markings used exclusively for school markings in Chicago
Fluorescent Yellow-Green	<ul style="list-style-type: none"> pedestrian warning bicycle warning playground warning school bus and school warning 	<ul style="list-style-type: none"> school and pedestrian crossings (experimental only) 	<ul style="list-style-type: none"> may be highly visible currently associated with "bicycle warning" 	
Red	<ul style="list-style-type: none"> stop prohibition 	<ul style="list-style-type: none"> do not enter do not use 		<ul style="list-style-type: none"> widely associated with "Stop" associated with bus lanes in Chicago
Coral	<ul style="list-style-type: none"> Unassigned 		<ul style="list-style-type: none"> not assigned in the MUTCD 	<ul style="list-style-type: none"> may look like red or orange after wear FHWA recommended against using due to issues with contrast may not provide sufficient contrast or visibility untested in marking applications
Purple	<ul style="list-style-type: none"> Unassigned 		<ul style="list-style-type: none"> not assigned in the MUTCD 	<ul style="list-style-type: none"> may not provide sufficient contrast or visibility
Light Blue	<ul style="list-style-type: none"> Unassigned 		<ul style="list-style-type: none"> not assigned in the MUTCD FHWA didn't see any problems with using this color for colored bikeways 	<ul style="list-style-type: none"> may be too close to blue untested in marking applications
Green	<ul style="list-style-type: none"> indicated movements permitted directional guidance 	<ul style="list-style-type: none"> used for colored bike lane in Vermont for FHWA approved experiment 	<ul style="list-style-type: none"> FHWA has previously approved for experimentation FHWA recommended looking at 	

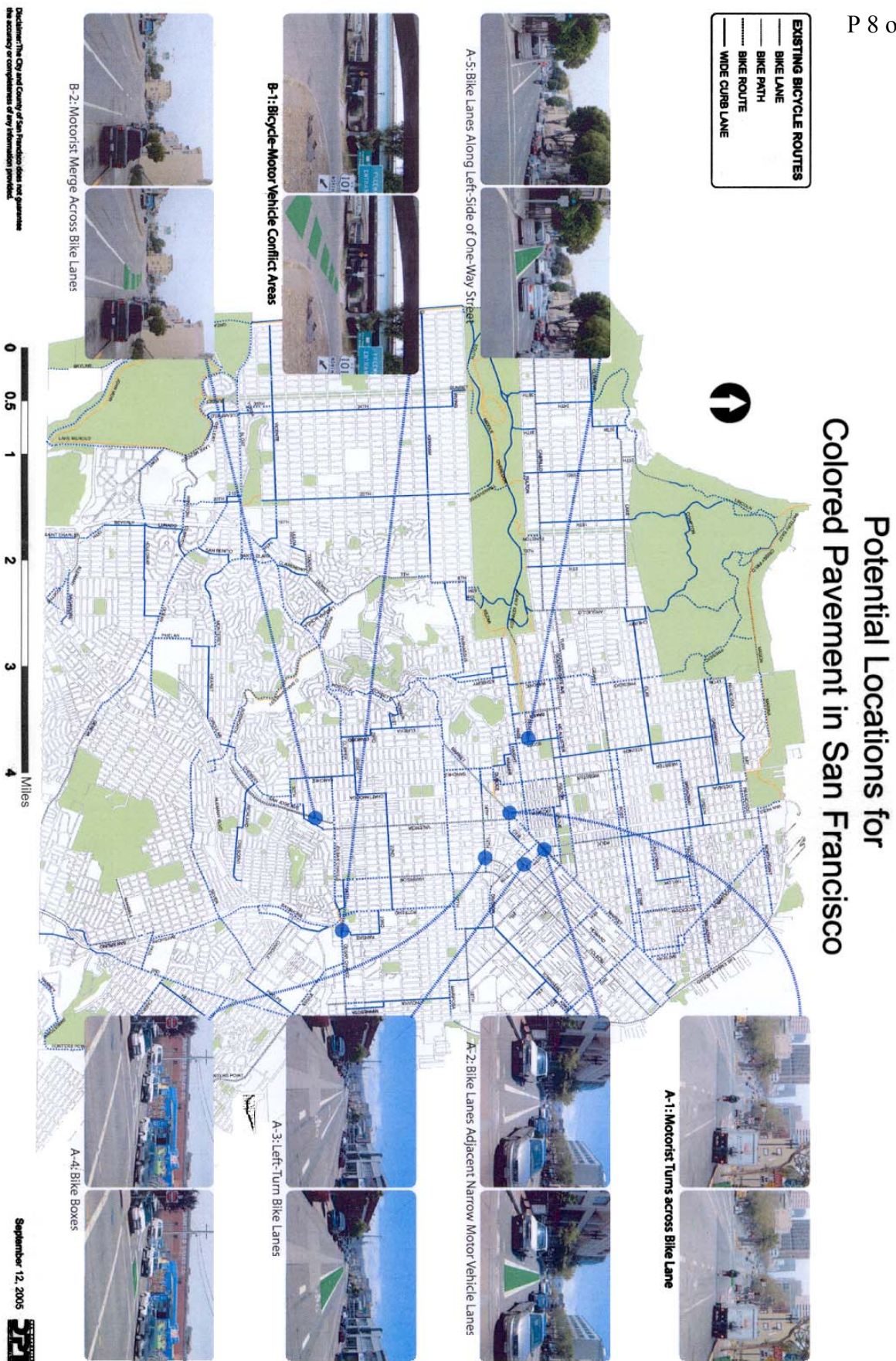
From Section 3E.01

- Colored pavement located between crosswalk lines to emphasize the presence of the crosswalk is not considered to be a traffic control device.
- Colored pavement used as traffic control devices should be used only where they contrast significantly with adjoining paved areas.

ATTACHMENT 2

P 7 of 8

**City of San Francisco's Potential Locations for Colored Bike Lane
Treatment**



04-7 Re-Evaluation of the Yellow Timing for the Signalized Intersections.**BACKGROUND**

The methodology in Section 4D.10 provides guidance for establishing the "minimum yellow light change interval" for traffic signals. This methodology is essentially the same as was included in Section 9-04.5 of the Caltrans 1996 Traffic Manual. The 1996 Manual used the term "approach speed" for the minimum yellow interval, which caused some confusion for the courts. The methodology in this section uses the posted speed limit or prima facie speed limit instead of the approach speed. At the December 8, 2004 meeting of the California Traffic Control Devices Committee (CTCDC) there was discussion regarding the desirability of changing the methodology because some public agencies are using automated enforcement systems. The CTCDC recommended that the methodology in this section be reevaluated after a period of one year. During this one-year period, the Committee will examine whether changes in the methodology would be appropriate.

06-3 Conflict between California Vehicle Code Section 275 and Federal American with Disabilities Act (ADA)

P 1 of 3



*Norman Suker and
Associates, Inc.*

Professional Testimony
Consulting for Litigation
Civil Engineering Services
Traffic Engineering Services

177 Riverside Ave., Suite 1014 Newport Beach, California 92663 (949) 722-1455

January 13, 2006

Mr. Hamid Bahadori
Automobile Club of Southern California
3333 Fairview Avenue
Costa Mesa, CA 92626

RE: UNMARKED PEDESTRIAN CROSSWALKS

Dear Mr. Bahadori:

This is a follow-up letter to my fax of 4/1/05 as you suggested. My concern is the apparent conflict between the California Vehicle Code (CVC) Section 275 which defines an (unmarked) crosswalk and the Federal Americans with Disabilities Act (ADA) which basically identifies a crosswalk to extend between ramps at intersection corners. The attached rough sketch graphically illustrates the conflict at an intersection I recently investigated.

It is my belief that the CVC needs to be revised to conform to the ADA. Presently, a pedestrian does not know where the unmarked crosswalk is and can be an issue if the pedestrian is hit by a vehicle.

Please submit this letter and enclosed sketch to the California Traffic Control Devices Committee as soon as possible for their consideration.

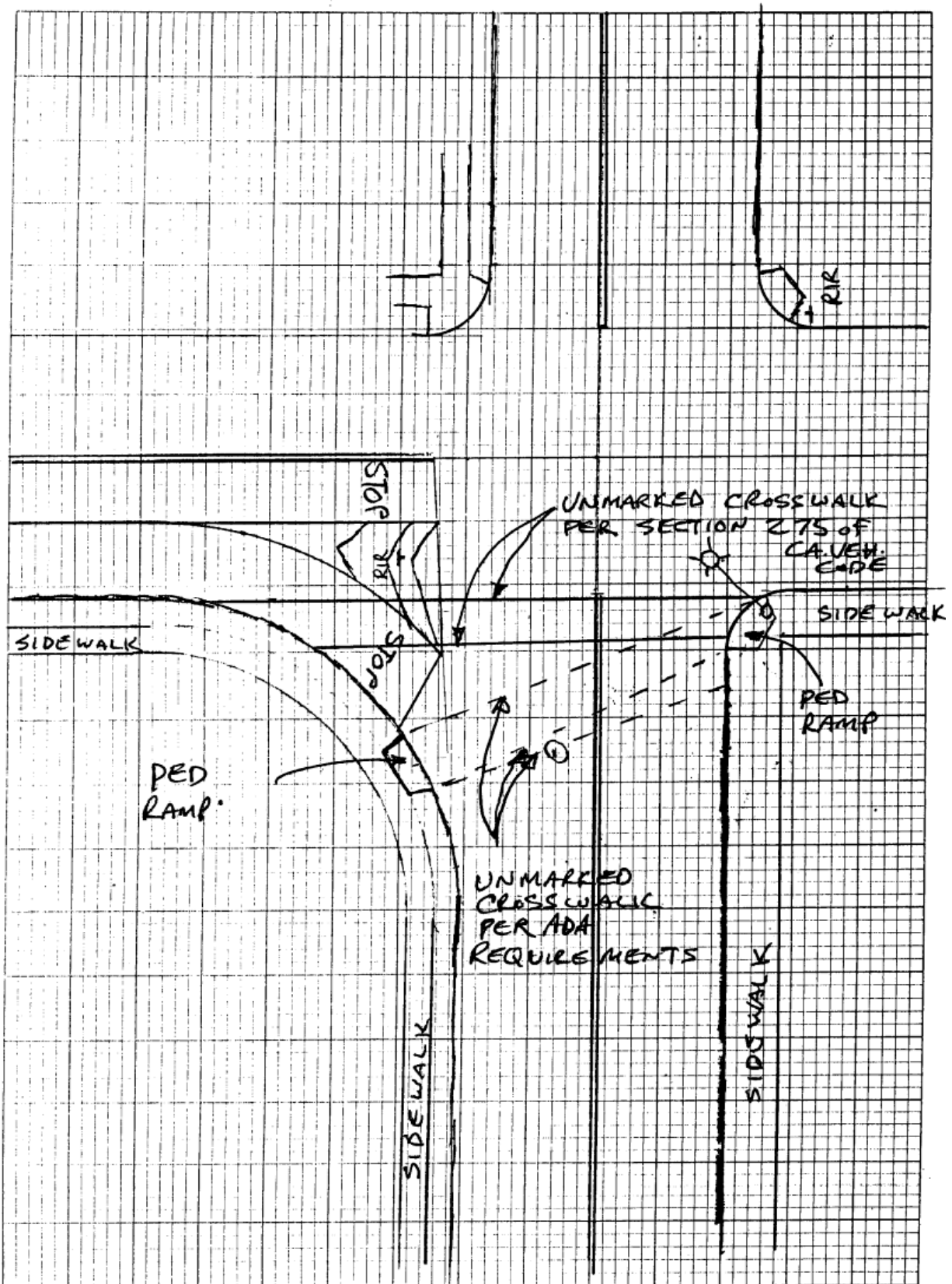
Sincerely,

A handwritten signature in black ink, appearing to read "Norman J. Suker", with a long horizontal line extending to the right.

Norman J. Suker, P.E.
Civil and Traffic Engineer

Crosswalk (California Vehicle Code)**275. "Crosswalk" is either:**

- (a) That portion of a roadway included within the prolongation or connection of the boundary lines of sidewalks at intersection where the intersecting roadways meet at approximately right angles, except the prolongation of such lines from an alley across a street.
- (b) Any portion of a roadway distinctly indicated for pedestrian crossing by lines or other markings on the surface. Notwithstanding the foregoing provisions of this section, there shall not be a crosswalk where local authorities have placed signs indicating no crossing.



06-4 Calm the Safety Zone

P 1 of 2

**Municipal Transportation Agency**

Gavin Newsom, Mayor
Cleopatra Vaughns, Chairman
Michael Kasolas, Vice Chairman
Shirley Breyer Black
Wil Din
Rev. Dr. James McCray, Jr.
Peter Mezey
Stuart Sunshine, Acting Executive Director



January 12, 2006

Calm the Safety Zone

Mr. Farhad Mansourian
Chairman, California Traffic Control Devices Committee
Director of Public Works, Marin County
P.O. Box 4186
San Rafael, CA 94913

Dear Mr. Mansourian:

The City and County of San Francisco is informing the California Traffic Control Devices Committee (CTCDC) about an upcoming project to "Calm the Safety Zone" next to the transit boarding islands along Market Street. Market Street is San Francisco's Main Street, experiencing heavy use by transit patrons, pedestrians, bicyclists, and automobiles. This Project is one of many actions recommended in the Market Street Study Action Plan to improve transportation on Market Street. The 'safety zone' is the area of curbside travel lane between the curb and the boarding island. This zone is a major point of conflict for all modes. Analysis has shown that most pedestrian collisions occur within this zone. Treatments to alert motorists of increased pedestrian traffic in the safety zone by coloring the pavement and improved signage may help reduce pedestrian-auto conflict. By slowing automobiles, it may also help reduce bike-auto conflict as well.

We are planning to color the 'safety zone' yellow by either colored slurry or Macro-Grip (a very hard and durable ceramic-colored aggregates). Pavement marking of '10 MPH' will be installed in the safety zone as well. The speed limit marking will be white on black for better visibility. We are planning to conduct a before and after study to evaluate the effectiveness of this project. This project is scheduled to be implemented in March or April of 2006.

We believe this project is not a 'traffic control device', but a traffic safety measure that can be considered a roadway feature. Also, we are not suggesting that this should be seen as a standard treatment at this time. Therefore, this project should not require the CTCDC approval as a traffic control device.

However, we are submitting this as an informational item for your information. We are willing to attend the CTCDC meeting in February 2006 to discuss this project in more detail if needed.

Farhad Mansourian
Calm the Safety Zone
January 12, 2006
Page 2

Please let us know if we need to attend the CTCDC February 24, 2006 meeting. If needed, Mr. Javad Mirabdal of my staff will attend the meeting. If you have any questions, please direct them to Mr. Javad Mirabdal, Transit Priority Group Manager, at 415-7014421.

Sincerely,

Jack Lucero Fleck
Acting Deputy Director and City Traffic Engineer